

# TERRORISM-RESISTANT TRASH KIOSK WITH INTEGRAL DISPLAY PANEL

## BACKGROUND OF THE INVENTION

### Field of the Invention

The invention is related to decorative and functional outdoor trash containers, and more specifically to outdoor trash containers which are especially suited for use in urban settings which may be targeted for terrorism. A trash container which provides space for commercial advertising is also provided.

### Background of the Invention and Description of Related Art

Terrorism is an unfortunate concern in the United States and around the world. One very easy method of committing an act of terrorism is to place a bomb in a crowded public location and detonate it during peak pedestrian traffic hours by use of a timer, a cell phone, a radio, or the like. Since many urban police forces are now on the lookout for suspicious packages sitting unattended, one place terrorists may hide an explosive device is within a trash can or receptacle. Some countermeasures have been implemented. In Washington, D.C., for example, subway trash receptacles are being replaced with bomb-resistant cans for this possibility. Nevertheless, bombs can be developed that can destroy even bomb-resistant containers, since any container will ultimately be destroyed if enough explosive force is used. In some cities, a "high alert" has caused city trash collectors to remove the receptacles from street corners to ensure that the receptacles cannot serve as hiding places for explosive devices.

Simultaneously, many cities are seeking new sources of revenue as the federal

government fails to deliver on aid to urban areas. In New York City, for example, parks and other public spaces are being contemplated for advertising use and naming rights by corporations and businesses. Many advertisements are already in place in the subway, and many more are being placed in such locations with creative uses of the space available. For example, rubberized plastic sheeting displays that adhere to the textured tile walls of a New York City subway station are being used.

### SUMMARY OF THE INVENTION

Accordingly, it is an object of the invention to provide a secure, terrorist-resistant trash kiosk.

It is a further object of the invention to provide a secure, terrorist-resistant trash kiosk which can also be used for advertising.

It is a further object of the invention to provide a secure, terrorist-resistant trash kiosk that is aesthetically pleasing.

It is a further object of the invention to provide a secure, terrorist-resistant trash kiosk that can generate revenue for a municipality.

It is a further object of the invention to provide a secure, terrorist-resistant trash kiosk that is easy to install, service, clean, and maintain.

The above and other objects are fulfilled by the invention, which is a secure sidewalk-mounted trash kiosk. The inventive kiosk includes a base which can be leveled and is attachable to paved ground, and has walls attached to and rising up from the base. The walls and the base define an interior volume. Light transmissible portions are formed in at least one of the walls.

An opening is defined by the walls above the base allowing limited access to place trash into the interior volume; trash so placed in the interior volume is visible from outside the kiosk. A removable trash bin placed in the kiosk can be used to facilitate trash removal. The bin can be removed from the kiosk during periods of high alert. In a preferred embodiment, the walls include bars spaced apart with the light-transmissible portions disposed between adjacent bars. The light-transmissible portions may be gaps in the material of the walls (e.g., the spaces between the bars) or may be made of glass or plastic.

In a preferred embodiment, at least one of the walls is hingedly attached to an adjacent of the walls and is openable to provide lateral access to the interior volume, i.e., it acts as a door. The at least one hingedly attached wall, acting as a door, preferably includes a locking mechanism – lockable and unlockable by use of a key externally to the kiosk. More preferably, the locking mechanism is automatically locked upon closing the door and from the outside is unlocked only with a key. The door is, however, unlockable without the use of a key from inside the kiosk so that a person cannot become trapped inside the interior volume. The components are intended to be relatively standardized or modular so that the entire kiosk need not be replaced if only a part needs repair or replacement.

It is preferred that the base be bolted to the ground, e.g., to a sidewalk, on a street corner, or some other sturdy substrate. In this way, the kiosk cannot be stolen, and it may serve as a physical barrier to stop or slow down a vehicle. Leveling feet are attached to a lower portion of the base which can be independently adjusted in height so as to level the kiosk.

The invention may further include a removable trash bin or receptacle placed in the interior volume; when trash is placed into the kiosk via the opening, the trash falls into the

receptacle. When the receptacle is full, the hingedly attached wall can be opened, and the bin is removed, emptied and replaced.

The preferred embodiment of the invention also includes a display frame having a channel into which an advertising image is disposable, and a planar viewing area. An image (card stock or poster) may be disposed in the channel so that the image is viewable through the planar viewing area. The display frame preferably includes a hinged portion moveable between an open and a closed position. When the hinged portion is in the open position, access to the channel is available and an image, a large sheet of advertising (as available on commuter trains, buses, bus stops, and telephone booths) may be inserted into or removed from the display frame via the slot. When the hinged portion is in the closed position, access to the channel is blocked by the hinged portion.

The benefits of the invention are readily apparent to one of skill in the art. First, the inventive kiosk is a relatively transparent container for holding trash; it is difficult to conceal an explosive or similar device inside, since the interior is visible from the outside via the light transmissible portions of the walls. Second, the kiosk is bolted to the ground and can serve as a vehicular barrier if need be, particularly if the base is provided with some ballast material such as sand or the like. The kiosk also includes a removable trash bin or container, also preferably clear, so that the kiosk itself does not get too filthy during use and, yet, explosives can not be concealed therein. The removable trash container or bin is much easier to empty than upturning the kiosk, and it is more sturdy than a simple trash bag. Also, the display panel is ideal for advertising, maps of the neighborhood, mass transportation service notices, artwork, and the like. The advertising can be revenue generating, of course.

## BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of the preferred embodiment of the invention.

Fig. 2 is a schematic perspective of a second embodiment of the invention.

Fig. 3 is a schematic perspective of a basic embodiment of the invention.

Fig. 4 is an exploded perspective view of the embodiment of Fig 1.

Fig. 5 is a perspective view of the display frame of the embodiment of Figs. 1 and 4.

Fig. 6A is a bottom elevation view of the base of the embodiment of Figs. 1 and 4.

Fig. 6B is a sectional view of the base taken along line A—A of Fig. 6A.

Fig. 6C is a side elevation view of the base of Figs. 6A and 6B.

Fig. 7A is an exploded perspective view of the door and a locking mechanism in accordance with the embodiment of the invention of Figs. 1 and 4.

Fig. 7B is an rear elevation view of the door and assembled locking mechanism of Fig. 7A.

Fig. 7C is a side elevation view of the door and assembled locking mechanism of Fig. 7A.

Fig. 8 is a schematic perspective view of a trash bin or receptacle as part of the invention of Figs. 1 and 4.

Fig. 9 is a schematic of an alternative embodiment of a wall section in accordance with the invention.

### Detailed Description of the Drawings, the Invention and the Preferred Embodiment

Description of the invention will now be given with reference to the attached Figs. 1-9. It should be noted that these drawings are exemplary in nature and in no way serve to limit the

scope of the invention, which is defined by the claims appearing hereinbelow.

Fig. 3 is a schematic diagram of the most basic form of the invention, trash kiosk 8.

Kiosk 8 is provided with a base 10 which is bolted to the ground by upwardly directed threaded bolts which are first embedded in the concrete, cement, or similar building material that will make up the ground beneath kiosk 8. Holes in the legs of the kiosk pass over the bolts and nuts are secured over the bolts to hold the kiosk in place. Attached to and rising up from base 10 are walls 12, which are provided with light-transmissible sections 14 and preferably with support structure 16 (cover and edge frames). In the embodiment shown in Fig. 3, walls 12 are depicted schematically as transparent or translucent plates of material (sections 14) which could be a very high strength plastic such as polycarbonate or other similarly suitable shatterproof polymer, or reinforced or shatterproof glass, or a resinous material, or any other material which would allow a person to view the interior of the kiosk 8. Transparent, light-transmissible sections 14 may be tinted for aesthetic purposes or to readily identify if a given kiosk 8 is for receiving general trash or a particular form of recycling (e.g., paper, plastic, metal bottles, etc.).

One wall is hingedly attached to an adjacent wall (or to a frame element) via hinges 22, thus forming a door 20. Door 20 is provided with a locking mechanism 24 which allows only authorized personnel access to the interior via a key. This is important to prevent people from rummaging through the trash and making a mess. Locking mechanism 24 is preferably provided with an internal release handle or latch so that the lock may be opened without a key from within kiosk 8. This is to prevent a person from becoming trapped inside the kiosk, either through his own stupidity or via a prank perpetrated by others. The locking mechanism is intended to automatically lock the door when the door is shut.

Atop walls 12 and door 20 is a cover 30 having a central opening 32 which allows pedestrians and others to place trash inside kiosk 8. It is preferred that cover 30 include sloping sections 34 which are declined from outside edges to the central opening 32 so that any trash that may be placed on top of cover 30 will roll or gently slide down a sloping section 34, pass through opening 32, and fall into the kiosk as it should. A removable trash bin or receptacle 40 (smaller in exterior dimensions than interior dimensions of the kiosk) having a top opening 42 may be placed inside kiosk 8 for receiving trash thrown into kiosk 8 via opening 32. It is advantageous to provide receptacle 40 so as to make the emptying of the kiosk much easier and to maintain a cleaner kiosk. Instead of digging out loose trash inside kiosk 8, a sanitation worker need only open locking mechanism 24 with his key, swing the door 20 open, remove a full receptacle 40, dump it into his truck, and replace the now-empty receptacle back inside kiosk 8. A handle (not shown) could also be provided to bin 40 to ease its removal and emptying of its contents. It is preferred that receptacle 40 be made clear or transparent with an optional tint so that its contents can be viewed from outside the kiosk. The transparency of the kiosk and the receptacle also allows for the sanitation department to determine when it is appropriate to empty the kiosk by visual inspection prior to trash overflowing out of the kiosk, as is the case with current trash management solutions.

Fig. 2 is a schematic depiction of a more preferred embodiment of the basic invention, kiosk 8'. Like numerals reference like elements, and the description of same will not be repeated. Kiosk 8' includes a raised rain shield 50, which is provided with a curved sloping surface 52. Curved sloping surface 52 serves at least three functions. First, it does not allow rain water or other precipitation to enter the kiosk via opening 32, thereby keeping the trash inside dry. This is

important since wet trash rots faster, smells worse, is heavier, and is a much more efficient breeding ground for mosquitoes and other insects than dry trash. Second, it does not allow water or other precipitation to pool on top of kiosk 8' but rather forces it to run off in a predictable direction. The placement of kiosk 8' can be coordinated with a gutter or sewer so that water from rain or snow drain appropriately. Third, sloping surface 52 deters people from putting trash on top of kiosk 8' (because it would roll off) or from sitting on top of kiosk 8' (because they would slide off).

Shield 50 is attached to cover 30 of kiosk 8' via legs 54. Legs 54 are dimensioned long enough to allow a person to fit his hand between cover 30 and shield 50 to dispose of trash into opening 32 but are short enough to prevent a person from accessing opening 32 and placing a large and potentially dangerous parcel inside the kiosk. It also discourages the sorting through of trash, which often results in a mess. Public trash and recycling containers are meant to receive banana peels, napkins, soda cans, newspapers, bottles, food, broken umbrellas, and the like; they are not meant to be used for large items. Shield 50 also serves to deter people from attempting to throw trash into the kiosk from a distance, like their favorite basketball player. In many instances with conventional open-top trash cans, such attempted “foul shots” and “field goals” prove unsuccessful, and the trash ends up on the sidewalk or street as litter. Shield 50 effectively prevents this attempt at the disposal-at-a-distance phenomenon.

The second feature of kiosk 8' not present in Fig. 3 is display frame 60 which allows a panel 62 to be displayed on kiosk 8'. Panel 62 may be an advertisement, an illustration, a poster, a corporate logo (e.g., of a company residing in a nearby building), a map, or other two-dimensional image substrate. Panel 62 may be made of cardboard, plastic, or any other material



from which advertisements can be made. Such advertisements are common on commuter trains and public bus stations and phone booths. Frame 60 is preferably provided with a front window 64 which is transparent and easily cleaned or replaced, as needed.

The preferred embodiment of the invention is shown in Figs. 1 and 4-7C. Kiosk 108 includes a base 110 shown in greatest detail in Figs. 6A-6C. Walls 112 are attached to and rise up from base 110 to define an interior volume inside kiosk 108. Walls 112 include bars 116 which are spaced apart from each other; the spaces between adjacent bars 116 forming gaps 114 which are light transmissible, of course. Because gaps 114 allow air and precipitation into the interior volume (but not necessarily into any trash disposed therein, as explained below), base 110 is provided with a sloped -to-the-center drainage hole 113 to prevent water or other liquids from pooling on base 110. The drainage hole 113 passes through a plate 119 which closes off the top of the base. In this preferred embodiment, kiosk 108 includes a structural frame in the form of vertical posts 117 (see Fig. 4) which are attached to base 110 at its corners onto post mounts 115 or to adjacent walls in a conventional manner.

A fourth wall forms door 120 (see Fig. 1) and is hingedly attached to only one post 115 via hinge post 123 which fits into mating hinge socket 121 (see Fig. 4) on an adjacent wall 112. Door 120 is openable and closable by operation of locking mechanism 124 (see Figures 7A-7C). An example of a locking mechanism 124 is shown in Figs. 7A-C, which includes latch pin 125, latch bolt 126, and spring 127. As shown in Fig. 7C, latch pin 125 is accessible from the interior side of door 120 so that a person trapped inside kiosk 108 can readily open the locking mechanism without a key by sliding the latch bolt 126 (by grabbing the latch pin 125) out of its catch and against the force of the spring 122.

As before, kiosk 108 is provided with cover 130 having a central opening 132 and sloping sections 134 surrounding opening 132 to assist in trash falling into opening 132. Disposable in the interior volume of kiosk 108 is, as shown in Fig. 8, a trash bin or receptacle 140. It is preferred that receptacle 140 be made lightweight, washable, clear or transparent with a tint, so that trash 200 that is placed inside will be visible from outside kiosk 108. Receptacle 140 can be made of a clear sturdy plastic, resin, or similar material that is both light-transmissible and rugged enough to survive being handled by sanitation workers. A handle 141 can be provided to facilitate removal, emptying and replacement.

A shield 150 is provided atop cover 130 for the purposes discussed above in connection with shield 50. Shield 150 is formed as a substantially semicircular arcuate piece with tabs 156 fitting into slots 136 of cover 130. Alternatively, the shield can be welded to the cover. The curved surface 152 of shield 150 serves to prevent trash or people from being placed atop kiosk 108.

Kiosk 108 also includes a potential revenue-generating mechanism in the form of a frame(s) for advertising space. One or more walls 112 (including the door 120) may be provided with display frame 160 (see Figs. 4 and 5) secured to an outside of the wall. As best shown in Fig. 5, display frame 160 includes a front frame portion 161 and a rear frame portion 163 defining a channel 162 therebetween. Most of front frame portion 161 is fixed to rear frame portion 163. However an upper hinged section 164 of front frame portion 161 (preferably about the top one-third) is hingedly attached to the rest of frame 160 via fasteners 169 (which may be rivets, bolts, or any similar conventional fastening device which enables relative rotation about a point). Upper hinged section 164 is securable to rear frame portion 163 by means of a screw, a

keyed screw or a bolt 165 threaded into hole 166. It is preferred that the head of bolt 165 is not a common slot or Philip's head type bolt so that only an authorized person with the proper tool can unscrew bolt 165 and open upper hinged section 164.

Front frame portion 161 preferably includes a clear window 167 which protects a display image (not shown) that would be placed in channel 162 inside frame 160. Media supports 168 may be provided to elevate an image that is smaller than the height of frame 160 or to press the advertising firmly against the window. Any type of graphic, text or image can be inserted into frame 160. It is understood that by providing an image in frame 160, that side of kiosk 108 is blocked, and the view of the interior is somewhat obstructed. However, as long as at least one (and preferably two) walls 112 are devoid of a frame, one should still be able to easily view the interior of the kiosk. In one embodiment, all four walls are provided with the frame for advertising. Each frame is secured to a wall by brackets which draw together and clamp the frame to the rods or bars of the wall.

Figs. 6A-C depict the preferred base 110 in greater detail than described thus far. It is preferably provided with an upper base section 170 and an inwardly recessed lower base section 172. Posts 117 are secured to upper base section 170 on the corners at post mounts 115. Lower base section 172 is preferably bolted to the ground at base mounts 174. Threaded bolts (not shown) are fixed into the ground via conventional means (e.g., cement) and passed through bolt holes 175 in base mounts 174. A nut (not shown) is then threaded on the bolt on the top side of base mount 174 to secure the base to the bolts and thus to the ground. Upper section 170 and lower section 172 are supported via leveling feet 176. Each foot 176 is threaded through a fixed nut of the base and independently adjustable by rotating the bolt of the foot so as to drive the

lower and upper base sections with respect to the movable feet at a given corner. Leveling feet work in a conventional manner, like refrigerator leveling feet. In this way, if the lower base section is attached to the ground that is not level, one or more of the feet at the corners of the base can be raised relative to the other corners to level kiosk 108.

Multiple kiosks in accordance with the invention may be used to line a given street for a variety of purposes. First, since they are bolted to the ground, they can serve as a barrier to prevent a vehicle from accidentally or deliberately crashing into pedestrians or a building. To this end, the kiosks can be used in place of ugly concrete security barriers (typically known as “Jersey barriers”), which are unappealing, or in place of extremely large cement or concrete planters, the plants of which require constant care and maintenance. Planters also have a potential aesthetic drawback in that they frequently serve as places where some slovenly people leave trash or sit. Second, the light-transmissible portions of the inventive kiosks can be tinted to match a common color scheme of the building or area, or they can be tinted to indicate that a given kiosk is designated for recyclable materials. Further, multiple kiosks can be provided with multiple display panels so that a running advertising campaign may span several kiosks, or several different maps may be provided (e.g., a bus map, a subway map, map with points of interest, etc.).

The invention is not limited to the above description. For example, the kiosks shown thus far have square bases and are essentially cubes or hexahedrons. However, the inventive kiosk may be given any shape, e.g., a dodecahedron having a pentagonal base, a pentagonal top, and upper and lower pentagonal walls (one or two of which may be hinged to form a door); a sphere; a pyramid, or any other regular or irregular three-dimensional structure. Also, the walls

have been described as having substantially vertical elements (e.g., bars with interspersed clear sections). However, the walls of the inventive kiosk may be provided with a series of holes or windows formed in the wall. For example, as shown in Fig. 9, wall 212 is provided with holes or windows 214 to enable the viewing of the contents of the kiosk. The holes may be of any shape and need not be round.

Having described the invention, it should be understood that the scope of the invention is not defined by the above description or the drawings attached hereto but rather by the claims appearing below. Modifications to the invention which would be obvious within the purview of the ordinary skill of the art are considered to be part of the scope of the invention and covered by the claims, if not literally, then by equivalents.